

US-PAT-NO: 6269394

DOCUMENT-IDENTIFIER: US 6269394 B1

TITLE: System and method for delivery of video data over a
computer network

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Abstract Text - ABTX (1):

A video clip storage and retrieval system whereby video clips, stored locally and/or at a more remote location, can be requested and retrieved by a user at the user's multimedia terminal. When the user requests a desired video clip, the request is processed by a primary index manager ("PIM") via a Local Search and Retrieval Unit ("SRU"). Before the message is communicated to the PIM, the local SRU checks its own storage to see whether the requested video clips are available locally. If some of the video clips are local, the local SRU still forwards the request to the PIM so that the PIM may determine specific video clip usage. The PIM determines the extended SRU where the audio-visual data is stored and passes this information to a Data Sequencing Interface ("DSI"). The DSI collects the video clips and downloads the clips to the user's terminal. The user may then view, copy, or print the video clip as desired. In a preferred embodiment, a distributed digital video clip delivery system, according to the invention, provides video clips stored at local and/or remote locations, which can be requested from the Internet and retrieved at the user's multimedia terminal. When the user requests a desired video clip shown on a Web page, the request is diverted to a primary index manager ("PIM"). The PIM attempts to locate the closest server containing the requested clip, from which the download is completed. The system further includes means for uploading and distributing clips to geographically diverse servers, dynamic load balancing, subscription management mechanisms, and protection means to discourage unauthorized duplication of video clips.

Application Filing Date - AD (1):
19981216

Detailed Description Text - DETX (7):

As shown in Table 1, each user terminal 14 comprises a search and query interface, an audio-visual display interface, and audio-visual data decompression logic. The search and query interface provides the user access to a database or index which can be interrogated for desired video clips and other information. For example, in a real estate application, one such database could be the Multiple Listing Service (MLS).

Detailed Description Text - DETX (16):

The local search and update logic serves primarily two functions. First, it enables local SRU 18 to search its storage media for requested video clips

before the query is transmitted to the PIM 22. The update logic allows the PIM 22 to identify whether the locally available video clip is current. Thus, when the user's request is transmitted to the PIM 22, the request is modified to indicate (1) whether the video segment is stored locally, and (2) the current Revision Code associated with the video clip. If the PIM 22 locates a clip that supersedes the one currently stored on the local SRU 18, the local SRU 18 is notified, the old data is deleted, and the new data is downloaded from the SRU 26 containing the updated video clip.

Detailed Description Text - DETX (26):

The "SRU Command logic" sees to the duplication of popular videos on alternate SRUs 26. It also places copies of video segments on SRUs geographically closer to the users most interested in those videos. The goal is not duplicate data onto SRUs 26 where the number of frequently downloaded videos ("FDVs") is already high (above a predetermined value). Duplication of data is performed according to the following logic during non-peak periods of system operation. The PIM 22 determines whether it is managing an extended SRU 26 which has an FDV level above this predetermined value. This determination is made by searching through the "Audio-Visual Data Index" database (described below) to identify the video clips that have been accessed most frequently. From this video subset, videos are selected for transferal or duplication based on where the video was used most. If the FDV was transferred principally from DSIs 30 created by the PIM 22, extended SRUs 26 located within the same computer are evaluated to determine whether that extended SRU 26 can accept a duplicate copy of the video clip. If so, the FDV is duplicated on the identified extended SRU 26.

Detailed Description Text - DETX (92):

In an embodiment of the invention for use with real estate data, the user would use a property database like the Multiple Listing Service as the primary text database, to determine the properties the user wishes to investigate. The user formulates an initial search query which is transmitted to the local SRU 18. The local SRU attaches the Regional ID to the query, which, in this application, may be the ZIP code(s), map, Cartesian, or GPS coordinate(s) associated with the requested properties. The local SRU 18 also searches its own storage facilities to determine whether the requested video clips are stored locally and, if so, attaches a Revision Code to available video clips. This enhanced query is transmitted to the PIM 22. The PIM 22 (1) updates the video clip usage tables; (2) uses the Regional ID to efficiently determine from among many remote IMs 34, which remote IM 34 has any information relevant to the enhanced query; and (3) uses the Revision Code to determine whether the locally available video clip is up-to-date. A list of available video clips is transmitted to the user. The user may then choose the video clips the user desires to view. This request is retransmitted to the PIM 22 via the local SRU 18. The PIM 22 creates a DSI 30, indicating to the DSI 30 where the requested video clips reside. The DSI 30 directs the extended SRUs 26 to download the video clips into the DSI 30 transmit buffers. The video clips are transmitted to the local SRU 18, and are subsequently displayed at the user terminal 14.